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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,514

04/27/2006

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7590

11/24/2009

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EXAMINER

GRAMLING, SEAN P

ART UNIT

PAPER NUMBER

2875

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,514	<b>Applicant(s)</b> ANDERSON ET AL.	
	<b>Examiner</b> SEAN P. GRAMLING	<b>Art Unit</b> 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12, 19, 20, 22-28, 30 and 32-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 19-20, 22-28, 30 and 32-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 14, 2009 has been entered. Claim 1 is amended. Claims 1-12, 19-20, 22-28, 30 and 32-46 are pending.

### ***Claim Objections***

**Claims 1 and 30** are objected to because of the following informalities:

Regarding claim 1, Applicant recites each "curved surface" in line 7. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, Examiner treats the curved surface as the at least one "curved portion" recited in line 6. Additionally, Applicant recites "each" curved surface in line 7, which *requires* more than one curved surface. Accordingly Applicant is claiming two or more curved portions rather than at least one curved portion as recited in line 6. Appropriate correction is required.

Regarding claim 30, Applicant recites each "curved surface" in line 10. There is insufficient antecedent basis for this limitation in the claim. For purposes of

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examination, Examiner treats the curved surface as the "curved portions" recited in line

6. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-12, 19-20, 22-28, 30 and 32-46** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Latz* (US 4,603,496) and further in view of *Mize* (US 6,328,456).

3. Regarding claims 1-2, *Latz* discloses a lens array 13 comprising multiple lenses 15 in a monolithic structure for collecting light from an array of multiple LED light sources 11; wherein each LED light source emits divergent light wherein for each LED light source there is a lens 15 having a first surface(the top surface of lens 15) with a compound shape of at least one curved portion that is equidistant from the center of the LED light source and that is distributable around the LED light source and arranged to collimate the light from the LED, each curved portion (Examiner designates the curved portion left of center of the LED as a first curved portion and the curved portion right of center of the LED as a second curved portion) is centered about a radius R extending from a center point that lies directly above an imaginary light point source on each of the sides of the LED, and wherein each lens has a spherical or an aspheric shape relative

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to its respective LED light source (see Figures 2 and 3, and column 2, lines 36-58).

Each lens 15 in Latz does not include a flat portion perpendicular to the center line.

However, Mize specifically teaches a lens with a curved surface equidistant from the center line of an LED light source with a flat surface perpendicular to the center line (see Mize, Figures 5-7 and column 5, line 25 through column 6, line 32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a flat surface between the curved portions on the lens 15 in Latz as taught by Mize in order to collimate the light rays through the flat surface while dispersing light through the curved surface in a uniform manner that also increases intensity (see Mize, column 5, lines 36-41).

4. Regarding claim 3, each of the spherical or aspheric surfaces are offset from (not aligned with) a center line extending through each LED light source 11 (see Figure 3)

5. Regarding claim 4, each of the lenses is symmetric about a center line extending through each LED light source (see Figure 3).

6. Regarding claim 5, each of the lenses 15 includes sections that collect light from respective portions of each LED light source (see Figure 3).

7. Regarding claim 6, each lens section is optimized for each portion of each LED light source from which each section collects light (see Figure 3).

8. Regarding claims 7-9, Latz specifically discloses that the arrangement and shape of the lens array 13 may be changed to produce other visual effects (see column 3, line 27 through column 4, line 5), but does not disclose a lens of aspheric shape wherein the lens has a faceted surface that approximates the offset aspheric shape and wherein

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each of the faceted surfaces has a symmetrically circular shape. However, Mize specifically teaches this type of lens (see Mize, Figure 8, and column 4, lines 15-18 and column 6, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the surface of the lenses 15 in Latz in an aspheric shape with facets having a symmetrically circular shape as taught by Mize in order to produce different visual effects and provide an increase number of surface configurations for the incident light so that uniform distribution of light is achieved (see Mize, column 6, lines 23-32).

9. Regarding claims 10-12, the lens 15 in Latz is not faceted with a square tile pattern that fully fills a surface of each lens and wherein the square tile pattern is formed from micro-pyramids. However, Latz specifically discloses that the arrangement and shape of the lens array 13 may be changed to produce other visual effects (see column 3, line 27 through column 4, line 5). It thus would have been obvious to one of ordinary skill in the art at the time the invention was made to form faceted surfaces on each lens in a square tile pattern formed from micro-pyramids since such lens configurations are well-known in the art (see Parkyn US 6,273,5960, Figure 17), and since it has been held that changing the form or shape of prior art parts does not make the claimed invention patentable over that prior art (*In re Dailey*, 149 USPQ 47).

10. Regarding claims 30, 32-36 and 38, Latz discloses a method of manufacturing an LED light module comprising determining a configuration for a monolithically molded array 13 of lenses 15 so that there is a separate lens for each LED 11, wherein each lens has a first surface having a compound shape including a curved portion that is

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distributed around an LED 11 arranged to collimate the light from the LED, and wherein each lens has a compound shape that includes curved portions (Examiner designates the curved portion left of center of the LED as a first curved portion and the curved portion right of center of the LED as a second curved portion) and wherein the lens is disposed over an LED so that light from each side of the LED is projected into a respective curved surface and each curved surface is centered about a radius  $R$  extending from a center point that lies directly above an imaginary light point source on each of the LED's 11 sides (see Figures 2 and 3, and column 2, lines 36-58).

Additionally, the lens array can be formed with a potting gel (see column 1, lines 20-25). Each lens 15 in Latz does not include a flat portion to separate the curved portions such that each curved surface is effectively a plano-convex lens. However, Mize specifically teaches a lens with curved portions separated by a flat surface such that each curved portion is effectively a plano-convex lens (see Mize, Figures 5-7 and column 5, lines 25-46). Moreover, each lens in Mize can be fabricated by machining faceted surfaces into the lens using a grinder (see Figure 8 and column 6, line 61 through column 7, line 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a flat surface on the upper surface of the lenses 15 and form faceted surfaces around the perimeter in Latz as taught by Mize in order to form collimated light rays and generate a uniform beam of high intensity (see Mize, column 5, lines 31-40).

11. Regarding claim 37, the lenses 15 in the lens array 13 in Latz are machined using circular lenses rather than micro-pyramids. However, Latz specifically discloses that the arrangement and shape of the lens array 13 may be changed to produce other

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visual effects (see column 3, line 27 through column 4, line 5). It thus would have been obvious to one of ordinary skill in the art at the time the invention was made to form micro-pyramids since such lens configurations are well-known in the art (see Parkyn US 6,273,5960, Figure 17), and since it has been held that changing the form or shape of prior art parts does not make the claimed invention patentable over that prior art (In re Dailey, 149 USPQ 47).

12. Regarding claims 39, the lens array 13 in Latz is formed of acrylic polymer rather than glass (see column 2, lines 52-54). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use glass rather than acrylic polymer in order to maximize the light transmission and intensity, and since it has been held that the selection of known material based on its suitability for the intended use for prior art parts does not make the claimed invention patentable over that prior art (In re Leshin, 125 USPQ 416).

13. Regarding claim 40, each lens 15 in the lens array in Latz is circularly symmetric (see Figures 2 and 3).

14. Regarding claim 41, each lens 15 in the lens array is formed of circular lenses rather than micro-pyramids. However, Latz specifically discloses that the arrangement and shape of the lens array 13 may be changed to produce other visual effects (see column 3, line 27 through column 4, line 5). It thus would have been obvious to one of ordinary skill in the art at the time the invention was made to form micro-pyramids since such lens configurations are well-known in the art (see Parkyn US 6,273,5960, Figure 17), and since it has been held that changing the form or shape of prior art parts does



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not make the claimed invention patentable over that prior art (In re Dailey, 149 USPQ 47).

15. Regarding claims 42-45, Latz discloses a lens array comprising multiple lenses 15 in a monolithic array structure 13 for collecting light from a predetermined array of multiple LED light sources 11, each lens having a first surface with a compound shape that includes curved portions; the lens being disposed over an LED 11 so that light from each side of the LED is projected into a respective curved surface; and each curved surface is centered about a radius R extending from a center point that lies directly above an imaginary light point source on each of the LED's 11 sides (see Figures 2 and 3, and column 2, lines 36-58). Each lens 15 in Latz is not aspherical and faceted and does not include a flat surface to separate the curved surfaces such that each curved surface is effectively a plano-convex lens arranged to collimate the light from the LED. However, Mize specifically teaches a lens with curved surfaces separated by a flat surface such that each curved surface is effectively a plano-convex lens arranged to collimate the light from the LED (see Mize, Figures 5-7 and column 5, lines 25-46). Moreover, each lens in Mize can be aspherical and faceted (see Figure 8 and column 4, lines 15-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a flat surface on the upper surface of the lenses 15 and form faceted surfaces around the perimeter in Latz as taught by Mize in order to form collimated light rays and generate a uniform beam of high intensity (see Mize, column 5, lines 31-40).

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16. Regarding claim 46, the curved surface of the lens 15 in Latz is not a micro-pyramid. However, Latz specifically discloses that the arrangement and shape of the lens array 13 may be changed to produce other visual effects (see column 3, line 27 through column 4, line 5). It thus would have been obvious to one of ordinary skill in the art at the time the invention was made to form micro-pyramids since such lens configurations are well-known in the art (see Parkyn US 6,273,5960, Figure 17), and since it has been held that changing the form or shape of prior art parts does not make the claimed invention patentable over that prior art (In re Dailey, 149 USPQ 47).

17. Regarding claim 19 (which is dependent on claim 42), the LED module in Latz further comprises a predetermined LED array to form an LED module (see Figure 2).

18. Regarding claim 20, each lens 15 is symmetric about a center line extending through the LED 11 (see Figure 3).

19. Regarding claim 22, each section of each lens 15 includes geometry that is optimized for each portion of the LED 11 from which that section of each lens collects light (see Figure 3).

20. Regarding claims 23-25, each lens 15 in Latz is not aspherical and faceted wherein the facts have a symmetrically circular shape. However, each lens in Mize can be aspherical and circularly faceted (see Figure 8 and column 4, lines 15-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a flat surface on the upper surface of the lenses 15 and form faceted surfaces around the perimeter in Latz as taught by Mize in order to form collimated light rays and generate a uniform beam of high intensity (see Mize, column 5, lines 31-40).

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Regarding claims 26-28, the lens 15 in Latz is not faceted with a square tile pattern that fully fills a surface of each lens and wherein the square tile pattern is formed from micro-pyramids. However, Latz specifically discloses that the arrangement and shape of the lens array 13 may be changed to produce other visual effects (see column 3, line 27 through column 4, line 5). It thus would have been obvious to one of ordinary skill in the art at the time the invention was made to form faceted surfaces on each lens in a square tile pattern formed from micro-pyramids since such lens configurations are well-known in the art (see Parkyn US 6,273,5960, Figure 17), and since it has been held that changing the form or shape of prior art parts does not make the claimed invention patentable over that prior art (In re Dailey, 149 USPQ 47).

### ***Response to Arguments***

21. Applicant's arguments filed September 14, 2009 have been fully considered but they are not persuasive. Examiner respectfully disagrees with Applicant's submission that the each curved portion of the top surface of the lens 15 in Latz is not centered about a radius  $R$  extending from a center point that lies directly above an imaginary light point source on each of the sides of the LED 11. Examiner submits that because the top surface of the lens 15 is curved (see Figure 3), and because the center points that Applicant claims can be located anywhere between the top surface of the LED 11 and the top surface of lens 15 to the left and right of the LED, there inherently exists two center points (above the top surface of LED 11 and below the top surface of lens 15) on

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each side of the LED 11 that each curved portion is centered about a radius R (see Figure 3).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN P. GRAMLING whose telephone number is (571)272-9082. The examiner can normally be reached on MONDAY-FRIDAY 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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